

What is claimed is:

1. A semiconductor processing apparatus comprising:
 - a common transfer chamber;
 - 5 a plurality of processing chambers, connected to the common transfer chamber, for processing a substrate;
 - a transfer mechanism, disposed within the common transfer chamber, for transferring the substrate with respect to the processing chambers; and
 - 10 a plurality of gas supply systems for supplying predetermined gases, the gas supply systems being provided in the processing chambers, respectively,
 - wherein each of the gas supply systems includes:
 - a primary-side connection unit connected to gas
 - 15 sources of the predetermined gases, the primary-side connection unit being disposed underneath the corresponding one of the processing chambers;
 - a flow rate control unit for controlling flow rates of the predetermined gases, the flow rate control unit being
 - 20 disposed on gas lines through which the gases are supplied from the primary-side connection unit to the corresponding processing chamber, the flow rate control unit being disposed above the primary-side connection unit so as to at least partially overlap therewith; and
 - 25 a gas box for enclosing the flow rate control unit, the gas box having a cover removably attached thereto for

providing access to the flow rate control unit.

2. The apparatus of claim 1, wherein the primary-side connection unit and the flow rate control unit are detachably connected to each other through trunk pipelines constituting part of the gas lines.

3. The apparatus of claim 1, wherein the primary-side connection unit is disposed on a floor of a room in which the apparatus is installed.

4. The apparatus of claim 1, wherein the primary-side connection unit and the flow rate control unit are hermetically enclosed by the gas box.

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5. The apparatus of claim 1, wherein the flow rate control unit is disposed to be inclined downwardly from an inner portion located above the primary-side connection unit toward an outer portion located in front of the primary-side connection unit.

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6. The apparatus of claim 5, wherein the outer portion of the flow rate control unit is located out of a plan view contour of the corresponding processing chamber and wherein the cover constitutes at least part of front and top surfaces of the gas box.

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7. The apparatus of claim 1, wherein the flow rate control unit is provided with a flow rate controller for monitoring pressures in the gas lines to control the flow rates of the predetermined gases, respectively.

8. The apparatus of claim 1, wherein the processing chambers are constructed to have a substantially same specification and the gas supply systems are constructed to have a substantially same specification, and wherein the distance between the flow rate control unit and the corresponding processing chamber is set to be equal between the gas supply systems.

9. The apparatus of claim 1, wherein each of the gas supply systems is provided with switching valves for opening and closing the respective gas lines, and the apparatus further comprises a remote control mechanism for concurrently closing the switching valves through a remote control operation.

10. The apparatus of claim 9, wherein each of the switching valves is a valve operated by an air pressure and kept closed when no air pressure is applied thereto, and the remote control mechanism is a lock-out valve disposed on a common upstream line through which an air is supplied to the

switching valves.

11. A semiconductor processing apparatus comprising:

a common transfer chamber;

5 a plurality of processing chambers, connected to the common transfer chamber, for processing a substrate;

a transfer mechanism, disposed within the common transfer chamber, for transferring the substrate with respect to the processing chambers; and

10 a plurality of gas supply systems for supplying predetermined gases, the gas supply systems being provided in the processing chambers, respectively,

wherein each of the gas supply systems includes:

15 a primary-side connection unit connected to gas sources of the predetermined gases, the primary-side connection unit being disposed underneath a removable floor panel of a room in which the apparatus is installed, the floor panel having a cover which is detachable for providing access to the primary-side connection unit;

20 a flow rate control unit for controlling flow rates of the predetermined gases, the flow rate control unit being disposed on gas lines through which the gases are supplied from the primary-side connection unit to the corresponding one of the processing chambers, the flow rate control unit
25 being disposed under the corresponding processing chamber such that at least a part thereof lies under the

corresponding processing chamber; and

a gas box for enclosing the flow rate control unit, the gas box having a cover removably attached thereto for providing access to the flow rate control unit.

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12. The apparatus of claim 11, wherein the primary-side connection unit and the flow rate control unit are detachably connected to each other through trunk pipelines constituting part of the gas lines.

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13. The apparatus of claim 12, wherein the trunk pipelines are disposed underneath a floor panel of the room in which the apparatus is installed.

15 14. The apparatus of claim 11, wherein the flow rate control unit is hermetically enclosed by the gas box.

15. The apparatus of claim 11, wherein the flow rate control unit is disposed to be inclined downwardly from an inner portion thereof lying under the corresponding processing chamber toward an outer portion.

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16. The apparatus of claim 15, wherein the outer portion of the flow rate control unit is located out of a plan view contour of the corresponding processing chamber and wherein the cover constitutes at least part of front and top

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surfaces of the gas box.

17. The apparatus of claim 11, wherein the flow rate control unit is provided with flow rate controllers for monitoring pressures in the gas lines to control the flow rates of the predetermined gases, respectively.

18. The apparatus of claim 11, wherein the processing chambers are constructed to have a substantially same specification and the gas supply systems are constructed to have a substantially same specification, and wherein the distance between the flow rate control unit and the corresponding processing chamber is set to be equal between the gas supply systems.

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19. The apparatus of claim 11, wherein each of the gas supply systems is provided with switching valves for opening and closing the respective gas lines, and the apparatus further comprises a remote control mechanism for concurrently closing the switching valves through a remote control operation.

20. The apparatus of claim 19, wherein each of the switching valves is a valve operated by an air pressure and kept closed when no air pressure is applied thereto and wherein the remote control mechanism is a lock-out valve

disposed on a common upstream line through which an air is supplied to the switching valves.